

BY ORDER OF THE COMMANDER



FAIRCHILD AIR FORCE BASE

INSTRUCTION 21-101

22 FEBRUARY 2004

Maintenance

**FUNCTIONAL/OPERATIONAL CHECK
FLIGHTS, ONE-TIME FLIGHTS AND HIGH
SPEED TAXI**

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This instruction establishes procedures, assigns responsibilities, and outlines actions pertaining to the Functional Check Flight (FCF)/Operational Check Flight (OCF) program, one-time flight procedures and high speed taxi procedures. It is used in conjunction with AFI 21-101 and AFI 21-101 AMCSUP 1, *Aerospace Equipment Maintenance Management*, and TO 1-1-300, *Acceptance/Functional Check Flight and Maintenance Operational Checks*. Ensure all records created by this instruction are maintained and disposed of IAW AFMAN 37-139, *Records Disposition Schedule*. This instruction requires collecting and maintaining information by the Privacy Act of 1974 authorized by Executive Order 9397. System of records notice F036 AF PC N, Unit Assigned Personnel Information applies. Ensure all records created by this instruction containing FOUO information are marked "For Official Use Only" at the bottom of each page IAW DOD 5400.7-R, *DOD Freedom of Information Act Program*. Ensure each paragraph containing FOUO information is marked as such. See **Attachment 1** for glossary of references and supporting information.

SUMMARY OF REVISIONS

This document is substantially revised and must be completely reviewed.

1. Responsibilities.

1.1. The 92d Maintenance Group Commander (92 MXG/CC) and 92d Operations Group Commander (92 OG/CC) have joint responsibility for the effective management of the FCF/OCF program. The maintenance and operations communities will work closely together in planning and conducting unit-level Functional Check Flight/Operational Check Flights (FCF/OCF).

1.2. For maintenance, the focal point for FCF/OCF matters is Quality Assurance (QA). The operations focal point for FCF/OCF matters is the FCF Officer in Charge (OIC), designated here as the 92d

Operations Group Standardization and Evaluation Office (OGV). QA and OGV will work closely together to ensure the FCF/OCF is performed safely and by a suitably qualified crew.

2. Procedures.

2.1. FCFs will be accomplished when required by technical orders (TOs) TO 1C-135A-6, *Aircraft Scheduled Inspections and Maintenance Requirements*, TO 1-1-300, and/or upon completion of other maintenance/repair actions (i.e., CANN rebuild) where group commanders or their designated representatives deem an FCF is appropriate and the 92 MXG/CC or designated representative signs the FCF/OCF Recommendation Letter (see [Attachment 2](#)). The FCF will be accomplished in accordance with TOs 1C-135-6CF-1, *Acceptance and/or Functional Check Flight Procedures Manual*, and 1C-135-6CL-1, 2 and 3 checklists, AFI 11-202V3, *General Flight Rules*, and AFI 11-2KC-135V3, CH 10/FAFBSUP 1, *C/KC-135 Operations Procedures; 92d Operations Group (OG) Local Operating Procedures; KC-135 Combat Employment School (CES) Local Operating Procedures*.

2.2. 92d Aircraft Maintenance Squadron (92 AMXS) and/or 92d Maintenance Squadron (92 MXS) Supervision (Production Supervisors) will:

2.2.1. Identify the FCF requirement and notify Plans, Scheduling and Documentation Section (PS&D) and QA.

2.2.2. Provide tail number and reason for FCF.

2.2.3. Ensure required personnel are available to meet with the FCF aircrew at the designated time and place for the FCF prior-to-flight aircrew briefing.

2.2.4. Ensure aircraft configuration/fuel load allows immediate landing capability after takeoff, and is adequate to complete the required profile and land with established fuel reserves. Coordination between the FCF OIC and QA will include fuel load determination.

2.2.5. Ensure appropriate technicians attend crew debriefing after FCF flight.

2.3. 92d Maintenance Operations Squadron PS&D section will:

2.3.1. Notify Operations Scheduling of FCF requirement, provide them with the aircraft type and tail number and request a time and place for the FCF prior-to-flight aircrew briefing. (normally Base Ops at takeoff time minus three hours)

2.3.2. Notify QA with the time and location for the FCF prior-to-flight aircrew briefing.

2.4. QA will:

2.4.1. Validate the existing condition requires an FCF.

2.4.2. Coordinate with OGV to determine FCF requirements, flight profile, fuel load and checklist procedures. Prepare FAFB Form 40, **Functional/Operational Check Flight Worksheet**.

2.4.3. Review aircraft 781-series forms for all corrective/completed actions before FCF and prior to flight crew briefing.

2.4.4. Meet with FCF aircrew at the scheduled time, and provide a copy of applicable portions of TO 1C-135-6CF-1 and TO 1C-135-6CL-1, 2 and 3 checklists to the aircrew (normally during mission planning at Base Ops).

- 2.4.5. Notify and ensure representatives (production supervisor or crew chief) from the owning organization are included in the FCF prior-to-flight aircrew briefing. Also notify the Wing Flight Safety Office of this briefing.
 - 2.4.6. Ensure maintenance personnel are available to answer aircrew questions, such as discrepancy and corrective actions for the condition(s) requiring the FCF.
 - 2.4.7. Brief and explain to the aircraft commander and aircrew the purpose of the FCF using FAFB Form 40. Discuss previous maintenance problems and discrepancies corrected on the aircraft, system and/or equipment relating to the FCF.
 - 2.4.8. Review the aircraft's primary Weight and Balance Handbook.
 - 2.4.9. Maintain an aircraft FCF file. As a minimum this file will include:
 - 2.4.9.1. AF Form 2400, **Functional Check Flight Log**, or automated equivalent.
 - 2.4.9.2. Obtain a copy of AMC Form 41, **Flight Authorization**, from the aircrew at the prior-to-flight crew briefing.
 - 2.4.9.3. Certification letters, designating aircrew members approved by the 92 OG/CC (or designated representative) and OGV to perform FCFs.
 - 2.4.10. Send a copy of the AF Form 2400, completed FCF checklists and any other appropriate FCF documents to PS&D for filing in the aircraft jacket file.
 - 2.4.11. Attend aircrew debriefing after FCF flights and collect the signed copy of TO IC-135-6CL-1, 2, and 3.
 - 2.4.12. Ensure signed copies of TO IC-135-6CL-1, 2, and 3 are turned into PS&D for filing in the aircraft records.
 - 2.4.13. File completed FAFB Form 40 in QA FCF/OCF continuity book.
- 2.5. OGV will:
- 2.5.1. Coordinate with QA, maintenance and operations to ensure an effective FCF/OCF program and actively promote safety and standardization in the unit FCF program.
 - 2.5.2. Coordinate with QA to determine the appropriate flight profile, fuel load and checklist procedures to be used for the FCF.
 - 2.5.3. Ensure the assigned crew is FCF qualified.
 - 2.5.4. Coordinate with the 92 OG/CC to issue written certification on the AMC Form 41, designating the most qualified crew available when an FCF qualified crew is unavailable. The 92 OG/CC or their designated representative will sign the AMC Form 41.
 - 2.5.5. Develop local FCF policies, procedures, in-flight profiles/procedures, and routes/areas used and coordinate them with QA. FCF crews will be trained through a program developed by 92 OG/OGV. Training should consist of the following:
 - 2.5.5.1. Pilots will normally fly one or two sorties and boom operators either fly one sortie or attend a briefing.
 - 2.5.5.2. Training should be conducted on Block 30 aircraft with nav-suite using TO IC-135-6CF-1.

2.5.5.3. Two first time FCF pilots should not be scheduled together on actual FCF's.

2.5.5.4. All FCF-qualified crewmembers will be designated on a letter, updated quarterly, signed by the OG/CC and maintained by OGV. A current copy of the letter will be provided to QA.

2.5.6. FCFs should be conducted within designated check flight airspace of the base. It is preferred to use AR610B or AR717A. Applicable flight plans and charts are maintained by OGV.

2.5.7. For any FCF flown to check primary aircraft systems as defined in TO 1-1-300, the existing weather at the time of takeoff will allow an emergency return to the airfield in visual meteorological conditions.

2.6. Operations Scheduling will:

2.6.1. Coordinate with QA to determine FCF/OCF requirements.

2.6.2. Coordinate with OGV to determine aircrew requirements.

2.6.3. Schedule the FCF mission to include flight duration, fuel load and aircrew. Coordinate a time/location for the prior-to-flight aircrew briefing (normally Base Ops at takeoff minus three hours).

2.6.4. Annotate FCF required and prior-to-flight aircrew briefing time/location in the remarks of the schedule.

3. Operational Check Flights.

3.1. Fly OCFs when required by TO 1C-135A-6 or when the 92 MXG/CC and/or maintenance supervision (in coordination with 92 OG/CC) deem it necessary due to maintenance actions/repairs.

3.2. Maintenance supervision will evaluate aircraft recovering from CANN actions to decide if an OCF is required before returning the aircraft to regular service by thoroughly evaluating the overall aircraft condition and the extent to which aircraft systems were affected by parts removal and installation.

3.3. Once the determination is made that an OCF is required, 92 AMXS/MXS Supervision, PS&D, Ops Scheduling, OGV and QA will coordinate and follow the same FCF procedures as outlined above. Exceptions are listed below:

3.3.1. Every effort will be made to notify appropriate agencies as soon as an OCF requirement is identified. If, due to a short-notice OCF requirement, OGV cannot be contacted for coordination, QA will coordinate with the 92 OG/CC or their designated representative.

3.3.2. When an OCF is requested, OGV will decide if a Stan/Eval (or other suitably qualified) aircrew should accomplish the OCF. OCFs flown to check primary aircraft systems as defined in TO 1-1-300 require an instructor pilot to be at a set of controls until the OCF portion of the flight has been completed. An instructor boom operator will accomplish OCFs required as a result of air refueling boom maintenance.

3.3.3. QA and OGV will develop appropriate checklist procedures based on their own expertise and maintenance specialist input.

3.3.4. OCF fuel load will be as dictated by OCF and mission requirements. OCFs flown to check primary aircraft systems as defined in TO 1-1-300 will be flown with a fuel load that allows an immediate landing in the event of a system malfunction.

3.3.5. OCFs may be flown in conjunction with a mission. OCFs flown to check primary aircraft systems will comply with the weather requirements for FCFs listed in TO 1-1-300. When the required operational checks have been successfully completed, there are no further specific weather requirements above and beyond normal existing guidance. Systems to be checked out will be verified operational prior to air refueling or touch and go landings.

4. Transient Aircraft. Transient aircraft at Fairchild AFB requiring FCF/OCF will coordinate through QA and OGV, along with their home station prior to the FCF/OCF attempt.

5. High-Speed Taxi Checks. The owning aircraft maintenance unit (AMU) coordinates with QA and OGV for circumstances in which a high-speed taxi check is requested. High-speed taxi checks will not be accomplished at Fairchild AFB without the specific approval of the 92 OG/CC and the 92 MXG/CC. Perform high-speed taxi checks with FCF aircrews according to applicable aircraft Dash 1-series publications and maintenance TO's. Configure aircraft with the minimum fuel practical to accomplish the high-speed taxi check to minimize brake and tire wear. **NOTE:** Ensure enough fuel is onboard to execute a take off, fly a normal pattern and land with applicable reserves should unexpected circumstances require take off. Aircrews performing high-speed taxi checks will complete a take off/landing data (TOLD) card.

6. One Time Flight Procedures/Documentation.

6.1. The final approving authority for any one-time flight, whether at Fairchild or off station, for 92 ARW aircraft is the 92 MXG/CC.

6.2. The 92 MXG/CC may delegate responsibility as necessary to a designated official.

6.3. See [Attachment 3](#) for a One-Time Flight Worksheet.

7. Forms Prescribed. FAFB Form 40, **Functional/Operational Check Flight Worksheet.**

8. Forms Adopted. AF Form 2400, **Functional Check Flight Log**, AMC Form 41, **Flight Authorization**, AFTO Form 781A, **Maintenance Discrepancy and Work Document.**

ANTHONY M. MAUER, Colonel, USAF
Commander

Attachment 1**GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

DOD 5400.7-R, *DOD Freedom of Information Act Program*
AFI 21-101, *Aerospace Equipment Maintenance Management*
AFI 21-101 AMCSUP 1, *Aerospace Equipment Maintenance Management*
AFI 11-202V3, *General Flight Rules*, 6 Jun 03
AFI 11-2KC-135V3, *C/KC-135 Operations Procedures*
AFMAN 37-139, *Records Disposition Schedule*
TO 1-1-300, *Acceptance/Functional Check Flight and Maintenance Operational Checks*, 10 Jun 02
TO 1C-135A-6, *Aircraft Scheduled Inspections and Maintenance Requirements*, 1 Mar 00
TO 1C-135-6CF-1, *Acceptance and/or Functional Check Flight Procedures Manual*, 1 Aug 01
TO 1C-135-6CL-1, 2 and 3, *Functional Check Flight Checklist*, 1 Aug 01
TO 00-20-1, *Aerospace Equipment Maintenance General Policies and Procedures*, 30 Apr 03

Abbreviation and Acronyms

AMU - Aircraft Maintenance Unit
PS&D - Plans, Scheduling and Documentation Section
FCF - Functional Check Flight
OCF - Operational Check Flight
QA – Quality Assurance
OIC – Officer in Charge
TO – Technical Orders
TOLD – Take off/landing data

Attachment 2

SAMPLE FCF/OCF RECOMMENDATION LETTER

MEMORANDUM FOR 92 MXG/CC

FROM: 92 MXG/MXQ

SUBJECT: Discrepancy(ies) and Corrective Action(s)

1. The following discrepancy(ies) was (were) discovered on KC-135_, serial number _____
2. Corrective action(s) taken:
3. FCF is/is not recommended for the above discrepancy and corrective action. OCF is/is not recommended for the above discrepancy and corrective action.

NAME, RANK, USAF
Chief, Quality Assurance

1st Ind, 92 MXG/CC

MEMORANDUM FOR 92 MXG/MXQ

Approve/Disapprove

CRAIG A. O'NEAL, Colonel, USAF
Commander, 92d Maintenance Group

Attachment 3**ONE-TIME FLIGHT PROCEDURE WORKSHEET**

A3.1. Request engineering disposition for one time flight if required.

A3.2. Coordinate one time flight requirement through HQ AMC/LGRC and TACC/XOZ prior to MXG/CC release authorization.

A3.3. Aircraft forms must be documented IAW TO 00-20-1.

A3.4. Sign off original Red X as follows: "Red X changed to Red Diagonal for the purpose of one-time flight to (name destination)" and if applicable "with enroute stop at (name station)."

A3.5. The MXG/CC signs the "INSPECTED BY" block and initials the "SYMBOL" block.

A3.6. If the MXG/CC is unavailable, an authorized official signs the "INSPECTED BY" block, initials the "SYMBOL" block and continues in the corrective action statement "One-time flight authorized by (name, rank title, Org.)."

A3.7. In the next open block of the AFTO Form 781A, enter a Red Diagonal in the "SYMBOL" block and current date in the "DATE DISC" block. In the "DISCREPANCY" block, enter the original discrepancy with a descriptive statement of temporary repair or inspection accomplished to make the aircraft airworthy for one-time flight. Also enter restrictions to normal flight operation of systems and/or equipment, such as gear operation, pressurization, altitude or airspeed limits, etc. Sign the "DISCOVERED BY" block (normally the same person that downgraded the Red X).

A3.8. Refer the original Red X and the new Red Diagonal entries to each other by "See Page No., Block No."

A3.9. When aircraft arrives at the destination, the Red Diagonal will be upgraded to a Red X.